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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/049,249	08/02/2002	Oscar Salonaho	915-003.3	8435

4955 7590 12/09/2004

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EXAMINER	
MILORD, MARCEAU	

ART UNIT	PAPER NUMBER
2682	

DATE MAILED: 12/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/049,249	SALONAHO, OSCAR	
	Examiner	Art Unit	
	Marceau Milord	2682	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 August 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 August 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2-8-2002*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lundby (US Patent No 6529482 B1) in view of Gunnarsson et al (US Patent No 6493541 B1) and Muller (US Patent No 6490461 B1).

Regarding claims 1 and 3, Lundby discloses a method of controlling at least one transmission parameter (figs. 3-5) of a connection between a transmitting station (300 of fig. 3) and receiving station (306 of fig. 3) in a communication system (col. 4, line 61-66) comprising: receiving (306 of fig. 3) at the receiving station a transmission signal from the transmitting

station (300 of fig. 3;col. 3, line 24- col. 4, line 14; col. 5, lines 41-65); determining from the received transmission signal whether there exists a power up requirement or a power down requirement (col. 11, lines 3-30;col. 6, lines 1-66; col. 7, lines 5-40; col. 10, lines 5-50).

However, Lundby does not specifically disclose the feature of monitoring the distribution of the power up and power down requirements over a period and in the event that a predefined form of the distribution is detected, changing quality target for the received signal.

On the other hand, Bark et al, from the same field of endeavor, shows in figure 5, a power control loops between the mobile station and two base stations BS1 and BS2. Based upon SIR measurements of a received signal, the mobile station generates transmit power control commands sent to the base stations BS1 and BS2. Similarly, the base stations BS1 and BS2 send transmit power control commands to the mobile station based on SIR measurements made of signals received from that mobile station. The transmit power control commands may include one or more bits which indicate a desired increase in transmit power or a desired decrease in transmit power (col. 8, lines 5-45). A detector detects the signal quality parameter, such as signal to interference ratio of a received signal from a controlled radio. The detected signal quality parameter may be adjusted by a processing entity, such as transmit power controllers 72 and 98 (figs. 4-6, and fig. 8; col. 8, line 45-col. 9, line 6). In addition, the power commands issued and received alternate every other command between power up and power down. As a result, both the output power transmit curve and the signal quality parameter curve are much closer to the target values with much smaller amplitude oscillation (col. 9, line 8- col. 10, line 67).

Muller also discloses a wireless telecommunications system in which mobile station power control is affected by a functional combination of signal to interference sampling, bit error

rate sampling, and frame error rate sample. The signal to interference sampling provides rapid power control adjustment, while the bit error rate and frame error rate factors provide less speedy but better power control adjustment (col. 3, line 20- col. 4, line 13; col. 4, lines 49-67). Furthermore, Muller shows in figure 5, shows a technique where the power correction measurement is influenced by slower, but more accurate, bit error rate and frame error rate. The results of the BER measurement and FER measurement are compared to target BER and FER values, and the comparison is used to modify the target Eb/Io figure at step 106. The target change will change as soon as there is new information on BER and FER. Thus the target changed is stored and becomes the new current target (col. 5, line 1- col. 6, line 42). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique of Muller to the modified system of Gunnarsson and Lundby in order to provide more accurate power control by combining bit error rate and frame error rate to determine power control.

Regarding claim 2, Lundby as modified discloses a method of controlling at least one transmission parameter (figs. 3-5) of a connection between a transmitting station (300 of fig. 3) and receiving station (306 of fig. 3) in a communication system (col. 4, line 61-66), comprising changing the power level of the transmission (col. 5, line 41- col. 6, line 16).

Regarding claim 4, Lundby as modified discloses a method of controlling at least one transmission parameter (figs. 3-5) of a connection between a transmitting station (300 of fig. 3) and receiving station (306 of fig. 3) in a communication system (col. 4, line 61-66), wherein the form of the distribution of the power up and the power down requirements is defined on basis of

variations in a Signal Interference Ratio target (col. 11, lines 3-30;col. 6, lines 1-66; col. 7, lines 5-40; col. 10, lines 5-50).

Regarding claim 5, Lundby as modified discloses a method of controlling at least one transmission parameter (figs. 3-5) of a connection between a transmitting station (300 of fig. 3) and receiving station (306 of fig. 3) in a communication system (col. 4, line 61-66), wherein the transmitting station is a base station of a mobile communication system and the receiving station is a mobile station (col. 5, line 40- col. 6, line 60).

Regarding claim 6, Lundby as modified discloses a method of controlling at least one transmission parameter (figs. 3-5) of a connection between a transmitting station (300 of fig. 3) and receiving station (306 of fig. 3) in a communication system (col. 4, line 61-66), wherein said determining of the power up requirement or power down requirement and said monitoring of the distribution are accomplished at the receiving station (col. 11, lines 3-30;col. 6, lines 1-66; col. 7, lines 5-40; col. 10, lines 5-50).

Regarding claim 7, Lundby as modified discloses a method of controlling at least one transmission parameter (figs. 3-5) of a connection between a transmitting station (300 of fig. 3) and receiving station (306 of fig. 3) in a communication system (col. 4, line 61-66), wherein said determining of the power up requirement or power down requirement is accomplished at the receiving station and said monitoring of the distribution is accomplished at the transmitting station (col. 11, lines 3-30;col. 6, lines 1-66; col. 7, lines 5-40; col. 10, lines 5-50).

Regarding claim 8, Lundby as modified discloses a method of controlling at least one transmission parameter (figs. 3-5) of a connection between a transmitting station (300 of fig. 3) and receiving station (306 of fig. 3) in a communication system (col. 4, line 61-66), wherein the

step of changing the transmission parameter of the connection comprises returning the transmission parameter of the connection to a predefined value (col. 11, lines 3-30;col. 6, lines 1-66; col. 7, lines 5-40; col. 10, lines 5-50).

Regarding claim 9, Lundby as modified discloses a method of controlling at least one transmission parameter (figs. 3-5) of a connection between a transmitting station (300 of fig. 3) and receiving station (306 of fig. 3) in a communication system (col. 4, line 61-66), wherein at least some of control parameters used for controlling the transmission parameter of the connection are transmitted to the receiving and/or transmitting station using radio network apparatus (col. 5, line 56- col. 6, line 64).

Regarding claim 10, Lundby as modified discloses a method of controlling at least one transmission parameter (figs. 3-5) of a connection between a transmitting station (300 of fig. 3) and receiving station (306 of fig. 3) in a communication system (col. 4, line 61-66), wherein the control parameters are defined in and/or control parameter updates are transmitted from a separate control unit (col. 5, line 56- col. 6, line 64).

Regarding claim 11, Lundby as modified discloses a method of controlling at least one transmission parameter (figs. 3-5) of a connection between a transmitting station (300 of fig. 3) and receiving station (306 of fig. 3) in a communication system (col. 4, line 61-66), comprising simultaneous use of at least two different sets of control parameters used for controlling the connection (col. 5, line 56- col. 6, line 60;col. 7, lines 4-36;col. 11, lines 3-30).

Regarding claims 12-13, Lundby discloses an arrangement for controlling at least one transmission parameter (figs. 3-5) of a connection between a transmitting station (300 of fig. 3) and receiving station (306 of fig. 3) in a communication system (col. 4, line 61-66) comprising:

a control unit for determining a power up requirement or a power down requirement from a signal transmitted from the transmitting station (300 of fig. 3;col. 3, line 24- col. 4, line 14; col. 5, lines 41-65); determining from the received transmission signal whether there exists a power up requirement or a power down requirement (col. 11, lines 3-30;col. 6, lines 1-66; col. 7, lines 5-40; col. 10, lines 5-50).

However, Lundby does not specifically disclose the feature of a means for monitoring the distribution of the power up and power down requirements over a period and means for changing the quality target of the transmission in the event that the means for monitoring detect a predefined form of the distribution in the monitoring distribution.

On the other hand, Bark et al, from the same field of endeavor, shows in figure 5, a power control loops between the mobile station and two base stations BS1 and BS2. Based upon SIR measurements of a received signal, the mobile station generates transmit power control commands sent to the base stations BS1 and BS2. Similarly, the base stations BS1 and BS2 send transmit power control commands to the mobile station based on SIR measurements made of signals received from that mobile station. The transmit power control commands may include one or more bits which indicate a desired increase in transmit power or a desired decrease in transmit power (col. 8, lines 5-45). A detector detects the signal quality parameter, such as signal to interference ratio of a received signal from a controlled radio. The detected signal quality parameter may be adjusted by a processing entity, such as transmit power controllers 72 and 98 (figs. 4-6, and fig. 8; col. 8, line 45-col. 9, line 6). In addition, the power commands issued and received alternate every other command between power up and power down. As a result, both

the output power transmit curve and the signal quality parameter curve are much closer to the target values with much smaller amplitude oscillation (col. 9, line 8- col. 10, line 67).

Muller also discloses a wireless telecommunications system in which mobile station power control is affected by a functional combination of signal to interference sampling, bit error rate sampling, and frame error rate sample. The signal to interference sampling provides rapid power control adjustment, while the bit error rate and frame error rate factors provide less speedy but better power control adjustment (col. 3, line 20- col. 4, line 13; col. 4, lines 49-67). Furthermore, Muller shows in figure 5, shows a technique where the power correction measurement is influenced by slower, but more accurate, bit error rate and frame error rate. The results of the BER measurement and FER measurement are compared to target BER and FER values, and the comparison is used to modify the target Eb/Io figure at step 106. The target change will change as soon as there is new information on BER and FER. Thus the target changed is stored and becomes the new current target (col. 5, line 1- col. 6, line 42). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique of Muller to the modified system of Gunnarsson and Lundby in order to provide more accurate power control by combining bit error rate and frame error rate to determine power control.

Regarding claim 14, Lundby as modified discloses an arrangement for controlling at least one transmission parameter (figs. 3-5) of a connection between a transmitting station (300 of fig. 3) and receiving station (306 of fig. 3) in a communication system (col. 4, line 61-66), wherein the means for changing the transmission parameter of the connection are arranged to return the transmission parameter to a predefined value (col. 5, line 41-col. 6, line 60).

Regarding claim 15, Lundby as modified discloses an arrangement for controlling at least one transmission parameter (figs. 3-5) of a connection between a transmitting station (300 of fig. 3) and receiving station (306 of fig. 3) in a communication system (col. 4, line 61-66), wherein the receiving station comprises the control unit, the means for monitoring distribution of the power up and the power down requirements and the means for changing the transmission parameter (col. 11, lines 3-30;col. 6, lines 1-66; col. 7, lines 5-40; col. 10, lines 5-50).

Regarding claim 16, Lundby as modified discloses an arrangement for controlling at least one transmission parameter (figs. 3-5) of a connection between a transmitting station (300 of fig. 3) and receiving station (306 of fig. 3) in a communication system (col. 4, line 61-66), wherein the transmitting station is a base station and the receiving station is a mobile station (col. 5, line 41- col. 6, line 60).

Regarding claim 17, Lundby discloses a receiving station for use in a communication system, comprising: means for receiving a signal from a transmitting station (col. 4, line 61-66); a control unit for determining a power up requirement or a power down requirement (col. 11, lines 3-30;col. 6, lines 1-66; col. 7, lines 5-40; col. 10, lines 5-50).

However, Lundby does not specifically disclose the feature of a means for monitoring the distribution of the power up and power down requirements over a period; and means for generating and transmitting a request for a change in quality target to the transmitting station in the event that the means for monitoring detect a predefined form of distribution in the monitored distribution.

On the other hand, Bark et al, from the same field of endeavor, shows in figure 5, a power control loops between the mobile station and two base stations BS1 and BS2. Based upon SIR

measurements of a received signal, the mobile station generates transmit power control commands sent to the base stations BS1 and BS2. Similarly, the base stations BS1 and BS2 send transmit power control commands to the mobile station based on SIR measurements made of signals received from that mobile station. The transmit power control commands may include one or more bits which indicate a desired increase in transmit power or a desired decrease in transmit power (col. 8, lines 5-45). A detector detects the signal quality parameter, such as signal to interference ratio of a received signal from a controlled radio. The detected signal quality parameter may be adjusted by a processing entity, such as transmit power controllers 72 and 98 (figs. 4-6, and fig. 8; col. 8, line 45-col. 9, line 6). In addition, the power commands issued and received alternate every other command between power up and power down. As a result, both the output power transmit curve and the signal quality parameter curve are much closer to the target values with much smaller amplitude oscillation (col. 9, line 8- col. 10, line 67).

Muller also discloses a wireless telecommunications system in which mobile station power control is affected by a functional combination of signal to interference sampling, bit error rate sampling, and frame error rate sample. The signal to interference sampling provides rapid power control adjustment, while the bit error rate and frame error rate factors provide less speedy but better power control adjustment (col. 3, line 20- col. 4, line 13; col. 4, lines 49-67). Furthermore, Muller shows in figure 5, shows a technique where the power correction measurement is influenced by slower, but more accurate, bit error rate and frame error rate. The results of the BER measurement and FER measurement are compared to target BER and FER values, and the comparison is used to modify the target Eb/Io figure at step 106. The target change will change as soon as there is new information on BER and FER. Thus the target

changed is stored and becomes the new current target (col. 5, line 1- col. 6, line 42). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the technique of Muller to the modified system of Gunnarsson and Lundby in order to provide more accurate power control by combining bit error rate and frame error rate to determine power control.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Bark et al US Patent No 6628956 B2 discloses an adaptive power control in a radio communication system.

Aalto US Patent No 5862489 discloses a power control method and arrangement for handover in a mobile communication system.

Gilhousen et al US Patent No 056109 discloses a method and apparatus for controlling transmission power in a CDMA cellular mobile telephone system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marceau Milord whose telephone number is 703-306-3023. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian C. Chin can be reached on 703-308-6739. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MARECEAU MILORD

Marceau Milord

Examiner

Art Unit 2682